

Communicating Research in Engineering Summer 2021

Course dates: May 10- June 18, 2021

Course length: 6 weeks

Day / Time: Tuesday and Thursday 2-5pm

Location: On OWL and Zoom (Zoom Link is in OWL)

Office Hours: by request

Names and Contact Details

Course Instructor: Dr. Olga Kharytonava

Email: vkharyt@uwo.ca

Communication of Additional Information:

Course information will be announced in zoom class and/or on OWL.

Course Description:

This course aims to assist graduate students in their preparation for conducting research by guiding them through the logic of the research process. A specific focus of this course is on developing students' critical thinking at every stage of their research process and communicating their research plan and (preliminary) results to different types of audiences. Upon completing this course, students should be able to clearly articulate their research plan from a critical perspective both orally and in writing. Students will also learn how to critically assess the work of their peers and provide constructive feedback following best practices.

This module was originally developed by Dr. Kharytonava through a joint collaboration between the Faculty of Engineering and the Western English Language Centre (WELC).

Delivery Method:

The course is comprised of 12 classes organized in 6 modules. The course will use the following methods: lectures, discussion and workshops.

The course will use the following methods:

Flipped Classroom: Students will be required to watch a 10-15 min lecture video explaining the key concepts *before class*, complete a short self-assessment quiz and prepare actions items listed for that class. In-class work will consist of putting the lecture material to practice.

Class Discussion: Students will be required to actively engage in class and complete the regular take-home tasks.

Group Work: Students will be required to effectively collaborate with their groupmates on class or take-home tasks.

Materials:

There is no textbook for this course. All materials will be available in class and on OWL.

Mandatory course requirements and Evaluation:

Students are expected to attend all classes and to complete the required tasks on time. In the case of absence, they are required to inform their instructor. They will still be marked as absent and are responsible to cover the missed material. Students will be required to complete all the weekly tasks and assignments regularly with a satisfactory grade. The assignments include quizzes, both oral and written work which are outlined in the Learning Objectives. It is expected that students prepare for every class. The tasks will be directly applicable to students' current graduate work and research.

Learning Objectives:

By the end of this course students will be able to:

- describe their research area, hypothesis and research objectives
- identify and assess ethical considerations in their research area
- formulate and present their assumptions, strengths and limitations
- outline the research and writing plan
- summarize the literature review from the critical perspective
- clearly present the gap in literature and the need for their research
- integrate literature into their writing
- identify the type of audience for oral presentation/written paper
- outline a paper and an abstract for a specific type of audience
- evaluate the effectiveness of visual aids (e.g. figures/tables)
- provide a clear and concise explanation of the figures/tables orally and in writing
- write an outline for a conference paper
- present their research in a 3 min presentation to a non-technical audience
- outline a conference presentation
- deliver a 5 to 15 min presentation to their peers
- provide constructive feedback on presentation skills

Course Content:

The course content may be adjusted as needed throughout the term.

Week 1

Understanding Research

Research Question & Hypothesis

Ethical Norms and Academic Integrity

Week 2

Critical Literature Review

Building Critical Literature Review

Writing a Critical Literature Review and Referencing

- Week 3** **Foundations for Technical Writing**
Outlining a Paper
Writing/Presenting to Different Types of Audiences
- Week 4** **Presentation of Results: Effective Figures/Tables**
How to Create and Present Results Orally
How to Cite and Explain in Writing
- Week 5** **Communication of Research Outcomes - I**
Preparing and Presenting Research at Conferences
Writing a Conference Paper
- Week 6** **Communication of Research Outcomes - II**
Preparing and Presenting a Poster
Preparing and Presenting a Podium Presentation

Writing Support Centre

Students are also encouraged to make use of the UWO Writing Support Centre.

<http://www.sdc.uwo.ca/writing/>